

## CLAIMS

We claim:

1. A method for controlling an insect population comprising the step of administering an insecticidally effective amount of a composition comprising at least one viable Gram negative bacteria, dead Gram negative bacteria, extracts of a Gram negative bacteria, or a mixture or combination thereof, where the amount of Gram negative bacteria, alive or dead, or the extracts, are deleterious to an insect population or when ingested by an insect, result in insect death.

2. The method of claim 1, wherein the Gram negative bacteria are selected from the group consisting of: Purple Phototrophic Bacteria; Nitrifying Bacteria; Sulfur- and Iron-Oxidizing Bacteria; Hydrogen-Oxidizing Bacteria, Methanotrophs and Methylophs, Acetic Acid Bacteria (Acetobacteraceae), Free-Living Aerobic Nitrogen-Fixing Bacteria, *Neisseria*, *Chromobacterium*, and Relatives, *Vibrio* and *Photobacterium*, Rickettsias, Spirilla, Sheathed Proteobacteria, Budding and Prosthecate/Stalked Bacteria, Gliding Myxoacteria, Sulfate- and Sulfur-Reducing Bacteria and mixtures or combinations thereof.

3. The method of claim 1, wherein the insects comprise cockroaches, fire ants, carpenter ants, or termites and the composition.

4. The method of claim 1, wherein the Gram negative bacteria is a species selected from the genus *Rhodobacter*.

5. The method of claim 1, wherein the species is *Rhodobacter capsulatus*.

6. The method of claim 1, wherein the extract includes at least an endotoxin produced by the Gram negative bacteria.

7. The method of claim 1, wherein the Gram negative bacteria is dead.

8. The method of claim 1, further comprising periodically administering the composition.

1 9. The method of claim 1, wherein the effective amount of the composition comprises from  
2 about  $5 \times 10^9$  to about  $1 \times 10^{13}$  bacteria or the extract is derived from a composition comprising from  
3 about  $5 \times 10^9$  to about  $1 \times 10^{13}$  bacteria.

1 10. A method for controlling an insect population comprising the step of administering an  
2 insecticidally effective amount of a composition comprising a food stuff and at least one viable Gram  
3 negative bacteria, dead Gram negative bacteria, extracts of a Gram negative bacteria, or a mixture  
4 or combination thereof, where the amount is of Gram negative bacteria, alive or dead, or the extracts,  
5 result in insect death.

1 11. The method of claim 10, wherein the insects comprise cockroaches, fire ants, carpenter ants,  
2 or termites.

1 12. The method of claim 10, wherein the Gram negative bacteria is a species selected from the  
2 genus *Rhodobacter*.

1 13. The method of claim 10, wherein the species is *Rhodobacter capsulatus*.

1 14. The method of claim 13, wherein the bacteria is dead.

1 15. The method of claim 10, wherein the extract includes at least an endotoxin produced by the  
2 Gram negative bacteria.

1 16. The method of claim 13, wherein the food stuff comprises a carbohydrate.

1 17. The method of claim 16, wherein the insects are cockroaches or fire ants.

1 18. The method of claim 13, wherein the food stuff comprises a cellulosic material.

1 19. The method of claim 16, wherein the insects are carpenter ants or termites.

1 20. The method of claim 10, further comprising periodically administering the composition.

1 21. The method of claim 10, wherein the effective amount of the composition comprises from  
2 about  $5 \times 10^9$  to about  $1 \times 10^{13}$  bacteria or the extract is derived from a composition comprising from  
3 about  $5 \times 10^9$  to about  $1 \times 10^{13}$  bacteria.

1 22. The method of claim 17, wherein the insect is fire ants, the effective amount is about 5 grams  
2 of the composition per mound and the 5 grams of the composition includes from about  $5 \times 10^9$  to  
3 about  $1 \times 10^{13}$  bacteria.

1 23. A composition for controlling an insect population (including) an insect food and (at least one  
2 Gram negative bacteria) from the genus *Rhodobacter*.

one single bacterium?

1 24. The composition of claim 23, wherein the insects comprise cockroaches, fire ants, carpenter  
2 ants, or termites.

1 25. The composition of claim 23, wherein the Gram negative bacteria is a species selected from  
2 the genus *Rhodobacter*.

1 26. The composition of claim 23, wherein the species is *Rhodobacter capsulatus*.

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Deposit

1 27. The composition of claim 26, wherein the bacteria is dead.

1 28. The composition of claim 23, wherein <sup>LAB</sup>the extract includes at least an endotoxin produced by  
2 the Gram negative bacteria.

1 29. The composition of claim 26, wherein the food stuff comprises a carbohydrate.

1 30. The composition of claim 29, wherein the insects are cockroaches or fire ants.

1 31. The composition of claim 26, wherein the food stuff comprises a cellulosic material.

1 32. The composition of claim 31, wherein the insects are carpenter ants or termites.

1 33. The composition of claim 23, wherein the effective amount of the composition comprises  
2 from about  $5 \times 10^9$  to about  $1 \times 10^{13}$  bacteria or <sup>LAB</sup>the extract is derived from a composition comprising  
3 from about  $5 \times 10^9$  to about  $1 \times 10^{13}$  bacteria.

1 34. The composition of claim 30, wherein <sup>population</sup>(the insect) is fire ants, <sup>LAB</sup>[the effective amount] is about  
2 5 grams of the composition per mound and the 5 grams of the composition includes from about 5  
3  $\times 10^9$  to about  $1 \times 10^{13}$  bacteria.